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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/663,723 | 09/17/2003 | Yasuhiro Shiraki | 402785/FUKAMI | 2240 |
| 23548 | 7590 | 05/04/2005 | EXAMINER | |
| LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960 | | | PATEL, ISHWARBHAI B | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2841 | |

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,723

Applicant(s)

SHIRAKI, YASUHIRO

Examiner

Ishwar (I. B.) Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/17/03</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Appendix "A"</u> . |

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Specie I Figure 1-7.

Specie II Figure 8-9.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record

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showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Jeffrey A. Wyand (Reg. 29,458) on April 20, 2005 a provisional election was made with traverse to prosecute the invention of specie I, claims 1-4. Affirmation of this election must be made by applicant in replying to this Office action. Claim 5 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Also, acknowledged is the receipt of the priority documents, which have been have been placed of record in the file.

Drawings

4. The drawings are objected to because: (i)n figure 2, reference number 26 is pointed to power plane layer instead of ground plane and reference number 27 for the power plane layer not shown. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

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amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kistner, (US Patent No. 6,828,513), in view of Darveaux et al., (US Patent No. 6,201,305).

Regarding claim 1, Kistner, in figure 4 and 8, discloses multi-layer printed board comprising a plurality of signal layers (top layer with signal pad 418 and bottom layer),

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each signal layer including a signal line (signal line as shown in figure 8, shown as element 276 in figure 2), a through-hole (404) electrically interconnecting the signal lines of said plurality of signal layers, and a ground through-hole (408) electrically interconnecting one of a plurality of ground layers (416) and a plurality of power supply layers of said multi-layer printed board, wherein said signal layer includes a land (land connected with the signal trace as shown in figure 8) connecting said through-hole to said signal line; said land has an external periphery with a first portion (portion with a periphery of projection 804, as marked on figure 8, in appendix "A") and extending further from a center of the land than any other portion of the external periphery and a second portion (second portion as marked on figure 8 in appendix "A") having a second radius (radius of disc portion 806) and extending a shorter distance from the center of the land than said first portion and a portion of the external periphery of said land opposite the ground through-hole (ground hole as marked on figure 8 in appendix "A") closest to the center of said land is the second portion (second portion as marked on figure 8 in appendix "A").

Kistner does not disclose the external periphery of the first portion having first radius. Periphery of the first portion (projections 806) of Kistner is having rectangular configuration (column 7, line 28-30). However, Kistner further recites that projections can be made of any shape to help stabilize and reinforce the pad, column 4, line 1-3 and column 3, line 1-2).

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Darveaux et al., in figure 3A, disclose pads with first and second portions (spokes) to have strong adhesion of the pad to avoid lifting of the pads. Darveaux et al., further recite pads with first and second portion with radius, (see figure 3A).

It will be obvious to a person of ordinary skill in the art at the time of applicant's invention to provide a known shape to have the desired stability and reinforcement of the pad.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the first portion of the land of Kistner with a radius, as taught by Darveaux et al., in order to have strong adhesion to stabilize and reinforce the pad.

Regarding claim 2, Kistner further discloses the first portion is generally arcuate (as shown by Darveaux et al., figure 3A) and the second portion is positioned within a virtual arcuate extension of the first portion, as applied to claim 2 above.

Regarding claim 4, Kistner further discloses a plurality of ground through-holes positioned on opposite sides of said signal line (ground holes 208 on both the sides of the trace 270, as shown in more detail in figure 2).

Allowable Subject Matter

7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The limitations “(w)herein the one of the through-hole and the ground through-hole closest to said land is positioned along a line generally perpendicular to said signal line and passing through the center of said land, and a portion of the second portion and having a minimum radius of the external periphery is positioned on the line generally perpendicular to said signal line”, in conjunction with other claimed limitation has not been disclosed or suggested by prior art of record, alone or in combination.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shirasaki, US Patent No. 6,700,789, in figure 1 and 2 discloses a wiring board with ground via (7) on both the side of the signal trace (3).

Nagaishi et al., in figure 3A-3C, discloses a circuit module with signal via surrounded by ground via.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ishwar (I. B.) Patel

Examiner

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April 27, 2005

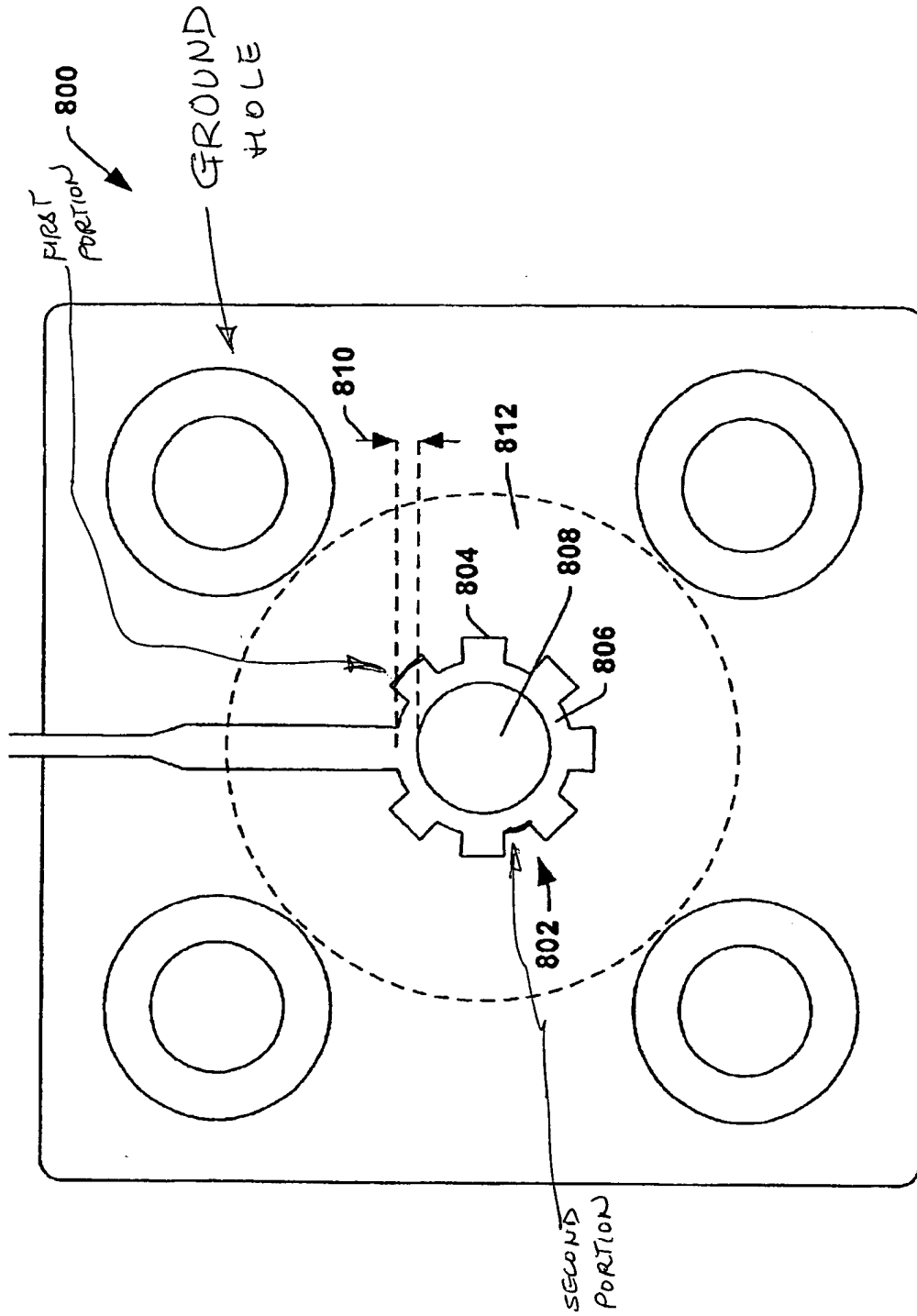


FIG. 8

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